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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/562,446

12/27/2005

Hideaki Matsuhashi

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3477

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EXAMINER

DAVIS, MARY ALICE

ART UNIT

PAPER NUMBER

3748

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/08/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/562,446

Applicant(s)

MATSUHASHI, HIDEAKI

Examiner

Mary A. Davis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 12/27/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-4 and 12-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites the limitation of "a stationary scroll and a slewing scroll having an end plate and a scroll-like wrap raised from the end plate, respectively". Both the stationary scroll and slewing scroll have end plates and wraps extending from the endplates, therefore, what is meant by "respectively" is not understood. Furthermore, the phrase "scroll-like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed. Is it a scroll wrap or something else?

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claims 1-4 and 12-13 are rejected under 35 U.S.C. 102(b) as being anticipated by HIROYUKI ET AL (Japanese Patent Publication 2001-032786).***

Regarding claim 1, HIROYUKI ET AL discloses:

- A scroll compressor comprising:

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- a stationary scroll (1) and a slewing scroll (2) having an end plate (1a, 2a) and a scroll-like wrap (1b, 2b) raised from the end plate (see Figure 15), respectively;
- an inhale opening (29, 4) provided at an outer periphery of the stationary scroll for inhaling fluid (see Figure 15, MEANS, Page 2, ¶17);
- a compression space (3) provided by engaging the respective wraps to each other (see Figure 15, Detailed Description, Page 2, ¶14), the compression space for compressing the fluid inhaled from the inhale opening by reducing capacity thereof while moving from the outer circumference to a center part of the stationary scroll by a circular orbit motion of the slewing scroll (see Figure 15 which shows that the discharge opening is at the center part of the stationary scroll, Detailed Description, Page 2, ¶14 and ¶16); and
- a discharge opening (5) provided at the center part (see Figure 15) for discharging the fluid compressed by the compression space (see Figure 15, Detailed Description, Page 2, ¶14).
- wherein at least any one of side faces sliding to each other of the respective wraps has a machining mark parallel to a surface of a corresponding one of the end plates (see Figure 2, and Abstract).

Regarding claim 2, HIROYUKI ET AL discloses the additional limitations not discussed above:

- wherein at least any one of side faces sliding to each other of the respective wraps has a shape perpendicular to a surface of a corresponding one of the end plates (see Figures 1, 7, 15, and 17).

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- that is Hale-machined by transferring a shape of non-rotation machining (HIROYUKI ET AL teaches that the side faces are machined by a grinding process (see Abstract). The claimed phrase “that is Hale-machined by transferring a shape of non-rotation machining” is being treated as a product by process limitation; that is, that the side faces must have the shape defined by the tool. HIROYUKI ET AL discloses different shapes of the scrolls, see Figures 3, 6, 7, 8, 10, 11, 12 which are similar to applicant’s disclosed machined surfaces shown in Figures 3A, 5, 6, 8, 9, 10 of the application. As set forth in MPEP 2113, product by process claims are NOT limited to the manipulations of the recited steps, only to the structure implied by the steps. Once a product appearing to be substantially the same or similar is found, a 35 U.S.C. 102/103 rejection may be made and the burden is shifted to applicant to show an unobvious difference. See MPEP 2113).

Regarding claims 3 and 12, HIROYUKI ET AL discloses:

- at least any of side faces sliding to each other of the respective wraps is cut by a non-rotational tool (see discussion above).

Regarding claim 4, HIROYUKI ET AL discloses:

- at least any of side faces sliding to each other of the respective wraps has a surface roughness of at most 1 micrometer (see Figure 4a, Detailed Description Page 3, ¶19).

Regarding claim 13, HIROYUKI ET AL discloses:

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- at least any of side faces sliding to each other of the respective wraps has a surface roughness of at most 1 micrometer (see Figure 4a, Detailed Description Page 3, ¶19).

***Claims 5-11 are rejected under 35 U.S.C. 102(b) as being anticipated by MCCULLOUGH (U.S. Patent 4,512066).***

Regarding claim 5, MCCULLOUGH ET AL discloses:

- A method for machining a scroll wrap comprising:
  - A) forming a stationary scroll and a slewing scroll that respectively have an end plate and a scroll-like wrap raised from the end plate for constituting a scroll compressor (Column 2, lines 11-16); and
  - B) cutting at least any of side faces sliding to each other of the respective wraps by a non-rotational tool (see Figures 4A-4D, 17, and 19-22, Column 6, lines 20-64).

Regarding claim 6, MCCULLOUGH ET AL discloses:

- the non-rotational tool has a height longer than the height of a raised part of the respective wrap from corresponding one of the end plates (see Figures 4A-4D, 17, and 19-22 that show the height of the tool is longer than the raised part of the wrap).

Regarding claim 7, MCCULLOUGH ET AL discloses:

- C) chucking any of the stationary scroll and the slewing scroll formed by the step A and cutting-machining at least any of side faces sliding to each other of the respective wraps and a surface of a corresponding one of the end plates by an

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end mill (Column 5, line 38 – Column 6, line 19), wherein the step B is performed while the chucking status in step C is being maintained (see Figures 3A-4D, and Column 10, lines 18-32. MCCULLOUGH discloses a use of a rotating indexing table (Column 7, line 58 - Column 8, line 4), which would allow the parts to be processed without removal from the machine).

Regarding claim 8, MCCULLOUGH ET AL discloses:

- the step B allows a non-rotational tool to cutting-machine at least any of side faces sliding to each other of the respective wraps and a surface of a corresponding one of the end plates (see discussion above), and the method further comprises;
- D) performing a finishing by cutting with a non-rotational tool while a same chucking status as that in cutting in the step B is being maintained (Column 7, line 58 – Column 8, line 4).

Regarding claim 9, MCCULLOUGH ET AL discloses:

- at least any of side faces sliding to each other of the respective wraps and a surface of a corresponding one of the end plates are simultaneously cutting-machined and finished by one non-rotational tool in the step B (Column 10, lines 18-36).

Regarding claim 10, MCCULLOUGH ET AL discloses:

- at least any of side faces sliding to each other of the respective wraps and a surface of a corresponding one of the end plates are separately cutting-machined and finished by different non-rotational tools in the step B (see Figures 10-1 for

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the outer flanks of the scroll wraps, and Figures 14-15 for the inner flanks of the scroll wraps.) olumn 10, lines 18-32, and Column 10, lines 48-50).

Regarding claim 11, MCCULLOUGH ET AL discloses:

- both of an inner face and an outer face of at least any wrap of the stationary scroll and the slewing scroll are cutting-machined and finished a non-rotational tool in any one of an order from the inner face to the outer face and an order from the outer face to the inner face (Column 10, lines 18-32, and Column 10, lines 48-50 disclose finishing of the inner and outer flanks separately, it is inherent that either the inner face can be machined before or after the outer face is machined).

***Prior Art***

The IDS (PTO-1449) filled on 27 December 2005 has been considered. An initialized copy is attached hereto.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of 9 patents or patent applications:



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- MATSUHASHI ET AL (U.S. Patent Application Number US 2004/0221696 A1) and MATSUHASHI ET AL (U.S. Patent Application Number US 2006/0133904 A1) discloses a non-rotary cutting tool used to machine scrolls.
- LICHTMAN (U.S. Patent 3,857,305) discloses different shaped cutting tools.
- MISIAK ET AL (U.S. Patent 5,320,505) discloses machining by electro chemicals.
- SAEKI ET AL (U.S. Patent 5,564,185) and IIO ET AL (U.S. Patent 5,581,880) discloses a method of machining a scroll with a rotational tool.
- FUREY ET AL (U.S. Patent 5,651,648) discloses a non-rotational machining tool.
- NIWA ET AL (U.S. Patent 4,615,091) and FUKUHARA ET AL (U.S. Patent 4,824,345) discloses a method of machining the scroll wraps using a non-rotational tool.

### ***Communication***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary A. Davis whose telephone number is (571) 272-9965. The examiner can normally be reached on Monday thru Friday; (Second Friday off) 7am - 3pm.

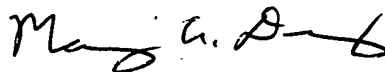
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MAD

3/1/07



Mary A. Davis

Patent Examiner

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